Comparisons of Job Characteristics

Focus Occupation: Physicists (19-2012)
Associated Occupation: Nuclear Engineers (17-2161)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge — Similarity of Focus Occupation to Associated Occupation: 84

Focus Occupation: Physicists (19-2012)
Associated Occupation: Nuclear Engineers (17-2161)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Engineering and Technology	5.7	24.3	17.5	<<	Extensive education and/or training may be required
Physics	4.3	20.8	23.8	>	Current knowledge level is likely sufficient
Mathematics	9.2	19.9	23.7	>>	Current knowledge level is likely more than sufficient
Design	5.2	17.3	7.6	<<	Extensive education and/or training may be required
Chemistry	4.8	16.2	8.3	<<	Extensive education and/or training may be required
Computers and Electronics	8.4	15.9	17.1	0	Current knowledge level may be sufficient
Public Safety and Security	6.9	14.2	8.1	<<	Extensive education and/or training may be required
Mechanical	6.8	13.6	8.7	<<	Extensive education and/or training may be required
Administration and Management	8.4	13.0	7.2	<<	Extensive education and/or training may be required
Law and Government	5.9	9.9	5.9	<<	Extensive education and/or training may be required
Building and Construction	4.0	8.2	2.1	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills — Similarity of Focus Occupation to Associated Occupation: 65

Focus Occupation: Physicists (19-2012)
Associated Occupation: Nuclear Engineers (17-2161)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Operations Analysis	5.0	15.7	9.1	<<	Extensive development of skills in this area may be required
Critical Thinking	10.8	14.8	16.7	>	Skill level is likely sufficient
Science	4.5	14.1	20.4	>>	Skill level is likely more than sufficient
Systems Analysis	6.5	12.6	11.3	<	A higher skill level may be required
Operation Monitoring	6.6	12.0	6.4	<<	Extensive development of skills in this area may be required
Mathematics	6.2	11.9	19.5	>>	Skill level is likely more than sufficient
Systems Evaluation	6.4	11.8	10.4	<	A higher skill level may be required
Quality Control Analysis	5.9	10.7	8.9	<	A higher skill level may be required
Technology Design	2.6	6.4	9.8	>>	Skill level is likely more than sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities — Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Physicists (19-2012)
Associated Occupation: Nuclear Engineers (17-2161)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Oral Comprehension	12.5	17.0	19.9	>	Current ability level is likely sufficient
Problem Sensitivity	11.1	16.6	15.5	0	Current ability level may be sufficient
Written Comprehension	11.0	16.2	19.2	>	Current ability level is likely sufficient
Oral Expression	12.4	16.0	19.0	>	Current ability level is likely sufficient
Written Expression	9.8	14.8	16.4	>	Current ability level is likely sufficient
Inductive Reasoning	10.2	13.9	18.3	>>	Current ability level is likely more than sufficient
Deductive Reasoning	10.6	13.8	17.8	>>	Current ability level is likely more than sufficient
Category Flexibility	9.0	12.2	15.8	>>	Current ability level is likely more than sufficient
Mathematical Reasoning	6.3	11.2	20.7	>>	Current ability level is likely more than sufficient
Number Facility	6.3	10.6	18.6	>>	Current ability level is likely more than sufficient
Perceptual Speed	7.4	10.2	10.2	0	Current ability level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common — Similarity of Focus Occupation to Associated Occupation: 91

Focus Occupation: Physicists (19-2012) Associated Occupation: Nuclear Engineers (17-2161)	
Work Activities	**Exclusivity of Activity**
Adhere to safety procedures	12
Advise authorities in procedures for radiation incidents or hazards	92
Advise clients or customers	19
Analyze scientific research data or investigative findings	27
Collect scientific or technical data	30
Communicate technical information	4
Conduct nuclear research	89
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Design manufacturing processes or methods	77
Develop mathematical simulation models	70
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Ensure prescribed safe radiation levels are maintained	89
Evaluate manufacturing or processing systems	68
Explain complex mathematical information	30
Follow safe waste disposal procedures	50
Operate high energy linear accelerator	99
Perform statistical analysis in physical science or geological research	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Provide expert testimony on research results	66
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use government regulations	44
Use hazardous materials information	35
Use knowledge of investigation techniques	16
Use knowledge of materials testing procedures	70
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21

Use spreadsheet software	18
Use word processing or desktop publishing software	17
Work as a team member	36
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 54

Focus Occupation: Physicists (19-2012)
Associated Occupation: Nuclear Engineers (17-2161)

Tools and Technologies	Exclusivity
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.